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JUL 12 1950

Acting Executive

Management Officer

Machine Methods and Agency Operation.

1. Discussion.

As requested, this office in conjunction with personnel of other offices conducted a comprehensive survey of present and proposed application of machine methods to Agency operations. The attached survey presents the subject in four broad phases:

- a. Brief history and outline of present application.
- b. Projects currently in developmental stage.
- c. Possible future applications.
- d. Outline plan for utilization of space for personnel and equipment.

2. Findings.

The Agency has made good progress in adaptation of machine methods to operations, solving many problems which could not have been solved from a practical standpoint by manual means.

While it is common knowledge that machine techniques are best applied by centralization of machines, it is not practical in the case of CIA at this time, because of the physical location of the various offices and certain security factors involved. However, if the Agency should ever become more compact, centralized machine operations will become a reality. Any type of security necessary could be provided by compartmentalizing the machine room itself.

3. If this plan is approved under existing circumstances, machine operations will be located in six places (OCD, OO, SSS, [REDACTED])

4. Recommendations:

a. That still wider usage be employed as rapidly as the use can be determined.

b. That one position be established in the Management Office for a supervisor-planner for machine methods who

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will have Agency control over machine techniques by taking grade function (and the individual) from OCD and assigning to Management.

c. That all administrative support by machine techniques be placed under the Special Support Staff.

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1 Attach.
Survey
(Tabs A,B,C,D)

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JUL 12 1950

OUTLINE OF PRESENT APPLICATIONS OF PUNCHED-CARD METHOD

1. The punched-card method has been continuously employed by CIA since February 1947. The method was first applied to the needs of indexing intelligence information and to other intelligence problems and was later extended to accounting and administrative record keeping problems. During this period, rapid progress was made in development and installation of procedures and the training of operating personnel. Definite continuous advantages and savings are being realized from the established procedures and further advantages will accrue as the method is extended to other work as described in Tabs B and C of this report. A brief history of the present applications and resultant advantages and savings is contained in the following paragraphs.

2. Indexes of Intelligence Information.

a. In 1946 when the operational requirements of the Agency were being determined, it was realized that the vast amount of intelligence data to be received must be indexed by a method which would provide a fast and accurate means of classifying, indexing and locating specific data upon request. Because speed and accuracy are essential in satisfying an intelligence request, the usual methods and procedures of indexing, finding, correlating and listing the information available for dissemination were found to be inadequate when measured by CIA requirements and standards. Therefore, a method and a procedure was required for speedily recording the pertinent data in a medium which could be mechanically filed, selected, correlated and listed with speed and accuracy.

b. After thorough investigation of numerous possible solutions, the punched-card method was selected because of its flexibility, speed and accuracy.

c. The task of adapting the method to the Agency's needs was started in the latter part of 1946. The procedures for the Contact Register of non-governmental sources of intelligence information, now maintained by the Contact Division/CO, was developed first. The necessary punched-card equipment was delivered in February 1947, and the procedures were placed in effect.

d. Similarly, procedures for indexing documentary, graphic, biographical and industrial intelligence data were in the process of development and were made effective during 1947.

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e. A special system was developed to provide a means of transmitting and reproducing abstracts of indexed documents upon request. The system includes the use of special facsimile equipment designed to automatically feed selected index cards, scan the abstracts of documents written thereon, transmit the scanned data to receivers located in the Library and other offices of CIA. The facsimile machines were developed and produced to meet specifications provided by the Agency. This system is now known as the Intello-fax System.

f. Punched-card procedures were developed for the purpose of producing gazetteers of place names for the NIS program. To date gazetteers for 37 countries and 296,689 place names have been completed. This work was started in May 1948. 25X1A

g. An index of the published [REDACTED] was established on a punched-card basis in May 1947, and is now the only complete index to the pamphlets published after April 1947.

h. Separate installations of machines were made in the Communications Division/OSO, and the Special Research Center. The procedures and results obtained by these two installations are of a classified nature.

3. Accounting and Administrative Record Keeping Problems.

a. The punched-card procedures and the manner of using the machines for intelligence problems are unique. The most universal and best known applications of the punched-card method are found in the field of accounting and administrative record keeping. The advantages to be derived from accounting applications were recognized and, in the fall of 1947, the Administrative Projects Branch was established in the present Machine Methods Division, OCD, to perform accounting and administrative records work on a punched-card basis for the Administrative Staff of CIA. The work of drafting procedures for accounting and related administrative record keeping jobs were accomplished as rapidly as possible with the limited number of available machine personnel primarily engaged in establishing and maintaining the intelligence indexes.

b. At the present time, the following jobs are being performed on a current basis:

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- (1) Personnel Statistical Records;
- (2) Personnel Qualification Records;
- (3) Personnel Strength Reporting;
- (4) Applicant Application Records;
- (5) Applicant Qualification Records;
- (6) Physical Inventory and Reconciliation of Warehouse Stock for Special Support Staff;
- (7) Personnel Position Control, OCD;
- (8) Book and Periodical Subscription Purchase Record, CIA Library;
- (9) Machine Utilization Records.

The above jobs listed above are only the beginning of a program for applying punched-card method to the Agency's accounting and record keeping problems. Additional applications are outlined in Tabs B and C.

4. Advantages and Savings Realized.

a. Since January 1947, the date of the first machine installation, the use of the punched-card method has been tested, altered, developed and expanded. The procedures in effect for the various intelligence registers are continuously being studied and revised to produce the desired results more expeditiously and efficiently. New procedures are developed to meet new or changed intelligence requirements. In some cases plans have been held in abeyance awaiting the development and installation of special equipment.

b. A few of the advantages which have been realized to date are listed below:

(1) The several types of index files now contain millions of items of intelligence information and those items are automatically and quickly located and produced upon request. To have accomplished the ends desired under a manual or semi-manual method would have been impossible. The value to CIA of mechanized index files of intelligence information cannot be over estimated.

(2) The procedure established for processing documents received in the CIA Library for the preparation of index cards

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and the related procedures for control, allocation and distribution of documents, have resulted in estimated annual savings of \$200,000. These annual savings alone more than offset the present annual cost of all punched-card equipment and supplies.

(3) Gazetteers of place names covering 37 areas and more than 296,000 names had been produced as of June 1950 and are continuing to be produced at the rate of 12,000 names a month. The production of gazetteers is the only one of several phases of the NIS program which is current with the established program schedule. One thousand copies of each gazetteer are published and it has been estimated that the present publication cost is one-third of the cost of publishing the gazetteers prior to the application of the punched-card method.

(4) The book and periodical subscription purchase record maintained by the CIA Library was placed on a punched-card basis in 1949. As a result of the information and control provided by the punched-card method, the cost of the annual periodical subscriptions was reduced by \$1,200. Based on information furnished in monthly punched-card reports, additional annual savings are being realized by maintaining the number of periodical subscriptions at a minimum.

(5) The application of the punched-card method to CIA Personnel Records and the Applicant File has furnished the Personnel Division with information otherwise unobtainable and has saved a great many man-days.

(6) The work performed for the Special Support Staff in applying the punched-card method to accounting and reconciliation requirements of the recent physical inventory of stock in the [REDACTED] Warehouses, resulted in a 25X1A substantial saving of \$55 accounting personnel time. The procedures used permitted the establishment of controls which would not have been feasible under a manual operation.

c. The advantages listed above, and other intangible benefits and savings, will continue and will be increased through:

(1) The continuous study of existing procedures to determine means of expediting the flow and processing of the source

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material and of increasing the efficiency of manual and machine operations.

(2) The development and exploitation of new machines and machine methods.

Provision has been made for such development and research through the use of Tabulation Project Planners in each Division using the punched-card method.

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JUL 12 1958

MACHINE APPLICATIONS IN DEVELOPMENT STAGE

1. Definite advantages and both direct and intangible savings can be obtained by the application of the punched-card method of accounting, statistical and record keeping problems, and it should be the goal of every user of the method to make the most extensive use of his machines. However, it is both inefficient and uneconomical to apply the method to a problem or to a part of a problem which can be performed better by another type of business machine or in some cases, by manual methods. It is the practice of this Agency to apply or recommend the use of the method when the results of a study of existing or contemplated procedures show that savings and valuable advantages will be realized by performing all or part of the work by means of punched-cards. The results of studies made of the jobs described below show that definite advantages will be realized:

a. CIA Position Control.

Procedures for maintaining a Position Control for Personnel and Budget Accounting purposes for departmental and field positions in all overt offices have been developed and will be made effective on completion of trials now being conducted. During the trial period any defects in the procedure which appear, will be remedied so that a firm procedure may be made operative. The automatic preparation of T/O sheets will be possible as a by-product of the operation. The advantages which will be realized are as follows:

- (1) A close control will be established over the assignment of personnel to established positions.
- (2) The manual posting of a position control record in the Budget Office will be eliminated.
- (3) At the end of the fiscal year or at any time upon request, the Budget Office will be furnished with a complete history of the occupancy of each position established in CIA. This record is required by the Bureau of the Budget in support of the request for funds for personnel services and is now obtained by laborious manual methods on the part of the entire budget staff over a period of a month. These hours of clerical time on the part of high salaried employees will be saved.
- (4) The control will assure that personnel services funds are properly expended.

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(5) The Personnel Director, Personnel Officers and the Administrative Officer in each office of CIA will be furnished, on a scheduled basis, copies showing the name of the person occupying each position and all other pertinent personnel data required for proper personnel management. These reports will eliminate many clerical hours in each of the offices.

b. Physical Inventory.

The application of the punched-card method to physical inventory saves time and assures accuracy through automatic extension of the value of each item, permits the establishment of strict controls which are not feasible under a manual procedure, and greatly facilitates the work of reconciliation between physical count and stock card balances through automatic comparison of quantities, unit of issue, unit price and value. Recently, the punched-card method was applied to the inventory of stock items conducted by the Special Support Staff and resulted in a substantial saving of clerical time and accuracy of results which otherwise, could not have been obtained. The work was performed by the Machine Methods Division as a special project without additional punched-card equipment and machine personnel. The Special Support Staff now plans to physically count one-twelfth of the warehouse stock each month. The count will be written on punched-card inventory tickets which will be forwarded to the Machine Methods Division for machine processing and later tabulations of all necessary accounting reports. The above procedure will be applied to all CIA inventories if this study is approved.

c. Stock Records.

The Special Support Staff has requested that the punched-card method be applied to their Stock Record Accounting problem and a procedure has been developed. Until such time as punched-card equipment is installed under the control of the SSS, the machine operations will be performed in Machine Methods Division, OCD. The flexibility of the punched-card method, not inherent in other methods, will permit the establishment of strict controls and the automatic preparation of periodic reports and analyses which will provide definite advantages, a few of which are:

(1) Better control over receipt and distribution of stock items.

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- (2) Reduction of investment in inventories to the lowest possible point consistent with requirements, in order to insure a continuous supply.
- (3) More realistic purchasing resulting from accurate facts as to stock balances and movement.
- (4) Accurate quantity and value balances resulting from automatic computation which eliminates errors of manual calculation.
- (5) Automatic preparation of complete and comprehensive Stock Status Reports which will simplify the checking of inventories and assure accurate cycle checking.

The same procedure will be extended to other CIA Stock Records when approved.

d. Payroll Accounting.

A punched-card procedure has been established for the SSS payroll and a trial run of this procedure has been made for several pay periods. Several changes in the original procedure have been made and it is now ready to be applied to the entire SSS payroll. A few of the definite advantages which may be realized by running the payroll on a punched-card basis are as follows:

- (1) Complete control of all elements affecting the net earnings of each employee.
- (2) Striking of trial balance each pay period of all elements of pay prior to the automatic preparation of Payroll Journals, Employee and Allottee checks, Individual Employee Earnings Records and Transfer Lists for posting credits to Station Pay Accounts, Insurance Accounts, Travel Advance Accounts, etc.
- (3) Distribution of costs of personnel services to various stations and projects. Total of costs distributed will be automatically balanced with Payroll total for pay period.
- (4) Automatic preparation, upon request, of gross earnings and tax withheld, and W-2 forms at the end of the calendar year for income tax purposes.
- (5) Periodic tabulation of individual retirement credits required by the Civil Service Commission.

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(6) Payroll cards used for performing aforementioned accounting functions will be available upon request for accurate and comprehensive statistical studies and analyses of all elements of personal service costs such as overtime pay, overseas pay, living and quarters allowances, dependency allowances, advances of various types, etc. These analytical studies cannot be obtained under a manual or semi-manual method without the uneconomical expenditure of time and effort.

(7) Cost of auditing personnel service costs by individuals, stations, and projects will be greatly reduced through the ability to automatically assemble personal cost data effecting any individual, station or project.

(8) Relieve present payroll section employees of time required to prepare special reports upon request of the Director and his staff and others, thus enabling them to devote their entire time to the preparation of payroll changes.

Because of the highly sensitive nature of the Special Support Staff Payroll, it has been decided that the payroll work should not be performed on a punched-card basis until machines and operating personnel are located in L Building under the administration of the SSS.

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JUL 12 1950

FUTURE APPLICATIONS

1. There are many accounting and record keeping jobs and intelligence problems now being performed by manual or semi-manual methods to which the punched-card method might be applied with resultant savings, greater accuracy, greater speed in obtaining end results and more complete information. Some of these problems have been reviewed in sufficient detail to recognize that definite advantages will accrue through the use of the method, and others are of a type which are usually performed by the punched-card method when the volume of work is sufficient. The present procedures must be studied more thoroughly before recommendations can be made. Also, there are very distinct benefits to be derived through broadening the scope of presently established procedures to include those parts of an entire problem still being performed by manual or semi-manual methods. As has been stated earlier in this report, the several Tabulation Project Planners are aware of the possibility of extending present procedures and are developing the necessary procedures. The principal reasons why such procedures have not already been made effective is (a) due to the absence of well trained machine operating personnel, tabulation project planners have been required to operate machines and therefore have not been able to devote their entire time to development work; (b) some basic procedures are just now reaching that point in their development where planned extensions can be made effective; and (c) some activities are waiting clearance of operating personnel, and cannot assume any additional work load. These difficulties are not uncommon to a growing installation and will be overcome as additional operating personnel report for duty and become proficient in machine operation and thoroughly familiar with procedures; and as the basic procedures become stabilized.

2. Immediate benefits can be realized from, and our effort should be directed toward making effective, the following:

a. Position Control - discussed in Tab B, to be made effective soon for departmental and field positions in the overt offices. Should be extended to include covert offices at an early date.

b. Physical Inventory - as discussed in Tab B, this work has been successfully performed for Special Support Staff and should be employed when inventory of overt stock is taken.

c. Stock Records - as stated in Tab B, procedures are now being developed and will be made effective in July 1950. As soon as the procedures have been perfected through actual operation, they should be extended to include all CIA stock record

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accounting. It is estimated that this can be accomplished by early 1951.

d. Property Record Accounting - This application will be developed in conjunction with the Stock Record application. It consists of establishing a card record of non-expendable items withdrawn from stock and charged to Accountable Officers. Lists of items charged to each account will be automatically prepared periodically or upon request, and furnished to each Accountable Officer. Manual records now maintained in each office will be eliminated, more accurate and up to date records will be established, and a reduction in the number of items annually written off will result. The savings which will be realized cannot be accurately estimated at this time. This application will be made effective concurrently with the Stock Record Application.

e. Preparation of Stock Catalog - The SSS is revising the stock numbers and nomenclature of those stock items which come under its cognizance. When the revision job is completed, it will be necessary and desirable to publish a stock catalog by a method which will permit new papers to be published as new items of stock are added. This requirement has been studied and it has been determined that because of the length and type of description required for many stock items, the addressograph method would be more feasible than the punched-card method. Addressograph equipment owned by the Agency is adequate for the job and will be used. The work of establishing the original addressograph plates for approximately 5700 items will be the most time-consuming part of the job. The work will be started as soon as revised stock numbers and nomenclature are available in August 1950.

f. Personnel Accounting - Definite savings in clerical time, and the production of essential personnel data and statistics are being realized from the current application of the punched-card method to Personnel Accounting requirements. Further savings and advantages will be realized as the application is extended. The extensions have been discussed and approved by the Personnel Office and are planned to be made effective during the course of 1950. The Personnel Accounting Application has been established for the Administrative Staff and to a limited extent for the Special Support Staff. When a machine installation is made in L Building the procedure can be extended to include all SSS requirements and the present savings and advantages will be increased thereby.

g. The applications listed above are major in character and

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will require considerable work and concentration of effort. It is our goal to have these jobs installed and operating by early Fiscal Year 1951.

3. Other applications of an accounting and record keeping nature will be surveyed and recommendations will be made on the basis of the survey findings. Included in this category are:

a. Budget Accounting which offers definite possibilities for advantageous application of the method.

b. In the intelligence field two major projects will be studied as follows:

(1) OSI is interested in adapting the punched-card method to their particular needs and is especially interested in the new "Dyson" punched-card method of indexing and producing abstracts of intelligence information. The "Dyson" machines will be produced by the International Business Machines Corporation. Since the machines are still in the development stage, very little information is released concerning the operation and potential of the machines and methods. It has been suggested that a demonstration of the machines and method be arranged so that this Agency may obtain a thorough understanding of the operation and potential of the Dyson machines. The IBM Corporation has concurred and will inform the AD/OCD as to when such a demonstration can be held. After obtaining this fundamental information an evaluation of the value of applying the method to the OSI problem can be made.

(2) The application of the punched-card method to the special indexing problems in the SO Registry was reviewed some months ago. It was found that certain phases of the job would have been difficult to solve with standard punched-card equipment available at that time. Since then new punched-card equipment has been developed. The new equipment is especially well adapted to the Registry's problems and will overcome the difficulties previously encountered. A detailed study of these problems will be made as soon as possible and procedures will be developed around the use of the new equipment. It is our opinion we can apply machine methods to the Registry and render a greatly improved service. The Assistant Director for Special Operations is very anxious for this to be done.

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d. Key roster showing list of key Agency positions and personnel qualified to fill the positions.

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JUL 12 1950

UTILIZATION OF PERSONNEL, SPACE AND EQUIPMENT1. Present Installations.

a. All punched-card installations are now located in four separate offices and are performing the type of work as follows:

<u>OFFICE</u>	<u>LOCATION</u>	<u>USE</u>
OO/Contact Div.	South Bldg.	Non-governmental sources index
OCD/	M Bldg.	Industrial Indexes
	Industrial Register	M Bldg.
	Machine Methods Div.	M Bldg.
	Machine Methods Div.	M Bldg.
	Machine Methods Div.	M Bldg.
	Machine Methods Div.	M Bldg.
	Machine Methods Div.	M Bldg.
	Machine Methods Div.	M Bldg.
SRC X X X	Q Bldg.	*Gazetteers Administrative Projects
SO/Communications	L Bldg.	Classified Classified

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*for purposes of efficient operation the key punching of gazetteer cards is performed in the Board of Geographic Names, South Interior Building. Machines and personnel are those of Machine Records Division.

b. OCD has the most extensive installation and is processing the greatest volume of work. A pool of tabulating machines has been established in OCD and is used in common by the Biographic Register, Industrial Register and Machine Methods Division. The pooling of machines is most economical and a high machine usage factor is obtained, thereby reducing costs.

c. The Contact Division/00 participated in the OCD machine pool until its offices were moved to South Building. It was decided at that time that for reasons of security and efficiency of 00/C operation, machines should be installed in South Building.

d. A separate and complete machine installation was established for the Special Research Center because the nature of the work required that it be performed separately.

e. The Communications Division/SO has an installation of one printing punch and one sorting machine. It is planned to increase this installation to a full complement of machines.

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2. Proposed Installation.

a. As stated in Tabs A, B and C, there are very definite advantages to be gained through the application of the punched-card method to Personnel Recording Accounting, Payroll Accounting and Physical Inventory and Stock Record Accounting and it has been recommended that these applications be established for Special Support Staff as soon as possible. However, the SSS source records are of such nature that they should not be removed from their location in L Building for processing. Therefore, a machine installation in L Building to handle both overt and covert administrative work for the Agency has been proposed.

b. For reasons described above, it is necessary to establish separate machine installations if CIA is to take immediate advantage of the increased efficiency and savings which can result from extension of the punched-card method throughout CIA. Therefore, it is proposed that:

(1) Sufficient number and type of machine required to perform for CIA Personnel Record Accounting, Payroll Accounting and Physical Inventory and Stock Record Accounting be installed in L Building under the Administrative Control of the Special Support Staff;

(2) the procedures established for these jobs be developed so that they can be extended to cover like work performed by the Administrative Staff;

(3) during the period required to complete the application of each job in SSS, the work now being performed by the Administrative Projects Branch, Machine Methods Division, OCD, be continued;

(4) as soon as each job in SSS has been completely installed, like work being performed in OCD for the Administrative Staff be transferred to the SSS installation;

(5) when all CIA administrative work is being performed by the SSS installation that the Administrative Project Branch be disestablished. (At that time the personnel remaining in the Administrative Branch will be transferred to the SSS installation.)

c. Some of the benefits to be derived from this plan are as follows:

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(1) The SSS installation will process only administrative applications.

(2) The procedures to be established for vouchered and unvouchered jobs will be the same which will permit the scheduling of all machine operations.

(3) The machine personnel will be trained on all jobs thereby permitting flexibility in the assignment of work.

(4) Revisions of existing procedures and development of new procedures and methods for both vouchered and unvouchered work can more easily be effected with all work being performed in the same shop.

3. The greatest utilization of potential machine time, and therefore the most economical use of machines, is obtained through the establishment of a central machine pool where sufficient machines are installed to perform the punched-card work of all operating offices.

A modified version of such a pool is now established in OCD, where the work of four Registers and CIA administrative work is now being performed. However, full centralization of machines operations in CIA is not feasible in different buildings not adjacent to each other; secure communication facilities between the operating offices and the central machine installation are not available; and it has been determined that certain applicable material should not be removed from the buildings where some of the operating offices are located. A centralized machine division for CIA would be feasible if CIA is ever housed in one building.

4. With the establishment of a machine group in L Building, there will be five separate installations located in various buildings and the growing need for centralized supervision and coordination of all punched-card activities within the Agency will become immediate. The necessary supervision and coordination can be obtained by the establishment of a machine planning and development group at the Staff level. Through such centralized supervision and coordination, tabulation project planners assigned to the several installations will not be isolated from each other and the following favorable results of directed activity will be achieved:

a. Elimination of duplication of development and planning effort.

b. The establishment of coordinated procedures.

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- (c) Uniformity in operating requirements and standards.
- (d) Prevent misapplication of the punched-card method.
- (e) Distribution of machines on work-load basis.
- (f) Realization of maximum rather than the minimum benefits through interchange of development and operating ideas.

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